

**PATENT APPLICATION**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re the Application of:

Haitao WU et al.

Application No.: New Application

Filed: November 17, 2003

Attorney Dkt. No.: 60282.00114

For: METHOD FOR ENHANCING FAIRNESS AND PERFORMANCE IN A  
MULTIHOP AD HOC NETWORK AND CORRESPONDING SYSTEM

**INFORMATION DISCLOSURE STATEMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

November 17, 2003

Sir:

Pursuant to 37 CFR §1.56, the attention of the Patent and Trademark Office is hereby directed to the information item(s) listed on the attached PTO-1449. Unless otherwise indicated herein, one copy of each item(s) is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the item(s) be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

- ☒ 1. This Information Disclosure Statement is being filed (a) within three months of the U.S. filing date or the date of filing a CPA, OR (b) before the mailing date of a first Office Action on the merits in the present application, or (c) accompanies a Request for Continued Examination. No certification or fee is required.
- ☐ 2. This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection or Notice of Allowance.
- ☐ a. I hereby certify that each item of information contained in this

Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 CFR §1.97(e)(1).

☐ b. I hereby certify that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 CFR §1.97(e)(2).

☐ c. A check in the amount of \$180.00 in payment of the fee under 37 CFR §1.17(p). Please charge any fee deficiency or credit any overpayment to Counsel's Deposit Account No. 50-2222 as needed to ensure consideration of the disclosed information.

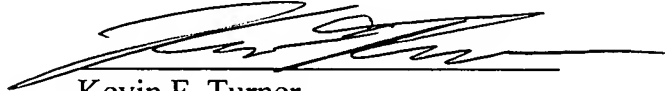
☐ 3. This Information Disclosure Statement is being filed more than three months after the U.S. filing date and after the mailing date of a Final Rejection or Notice of Allowance, but before payment of the Issue Fee. Applicant(s) hereby petition(s) that the Information Disclosure Statement be considered. Attached is our check in the amount of \$130.00 in payment of the petition fee under 37 CFR §1.17(i)(1). Please charge any fee deficiency or credit any overpayment to Counsel's Deposit Account No. 50-2222 as needed to ensure consideration of the disclosed information.

☐ a. I hereby certify that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement. 37 CFR §1.97(e)(1).

☐ b. I hereby certify that no item of information in this Information Disclosure Statement was cited in any communication from a foreign patent office in a counterpart foreign application and, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 CFR §1.97(e)(2).

In the event that there are any fees due with respect to the filing of this paper, please charge Counsel's Deposit Account No. 50-2222.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Kevin F. Turner', written over a horizontal line.

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Enclosures: PTO-1449 Form; 17 References

FORM PTO-1449	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY. DOCKET NO. 60282.00114	SERIAL NO. Unassigned
LIST OF REFERENCES CITED BY APPLICANT  (Use several sheets if necessary)		APPLICANT Haitao WU et al.	
		FILING DATE November 17, 2003	GROUP Unassigned

**OTHER REFERENCES** (Including Author, Title, Date, Pertinent Pages, Etc.)

AA	B.P. Crow, I. Widjaja, J.G. Kim, P.T. Sakai, "IEEE 802.11 Wireless Local Area Networks," IEEE Communications Magazine, September 1997
AB	Z.J. Haas, J. Deng, "Dual Busy Tone Multiple Access (DBTMA)-A Multiple Access Control Scheme for Ad Hoc Networks," IEEE Trans. On Comm. V50, N6, June 2002, p. 975-985.
AC	K. Chandran, S. Raghunathan, S. Venkatesan, R. Prakash, "A Feedback-Based Scheme for Improving TCP Performance in Ad Hoc Wireless Networks," IEEE Personal Comm., Feb. 2001, p. 34-39.
AD	F. Wang, Y. Zhang, "Improving TCP Performance Over Mobile Ad-Hoc Networks With Out-Of-Order Detection and Response," MOBIHOC '02, June 2002.
AE	C. Bakarat, E. Altman, W. Dabbous, "On TCP Performance in a Heterogeneous Network: A Survey," IEEE Commun. Mag., Jan. 2000.
AF	S. Xu, T. Saadawi, "Does the IEEE 802.11 MAC Protocol Work Well in Multihop Wireless Ad Hoc Networks?," IEEE Commun. Mag, June 2001.
AG	V. Bharghavan, A. Demers, S. Shenker, L. Zhang, "MACAW: A Media Access Protocol for Wireless WLAN's, ACM SIGCOMM, 1994, p. 212-225.
AH	C.L. Fulmer, J.J. Garcia-Luna-Aceves, "Floor Acquisition Multiple Access (FAMA) for Packet-Radio Networks," ACM SIGCOMM 1995.
AI	C.L. Fulmer, J.J. Garcia-Luna Aceves, "Solutions to Hidden Terminal Problems in Wireless Networks," ACM SIGCOMM 1997.
AJ	T. Ozugur, M. Naghshineh, P. Kermani, J.A. Copeland, "Fair Media Access for Wireless LANs," IEEE Globecom '99, p. 570-579, 1999.
AK	Z. Fang, B. Bensaou, Y. Wang, "Performance Evaluation of a Fair Backoff Algorithm for IEEE 802.11 DFWMAC," MOBIHOC '02, June 2002.
AL	X.L. Huang, B. Bensaou, "On Max-min Fairness and Scheduling in Wireless Ad-Hoc Networks: Analytical Framework and Implementation," MOBIHOC '01, Long Beach, CA 2001.
AM	T. Nandagopal, T-E Kim, X. Gao, V. Bharghavan, "Achieving MAC Layer Fairness in Wireless Packet Networks," ACM MOBICOM 2000.
AN	V. Kanodia, C. Li, A. Sabharwal, B. Sadeghi, E. Knightly, "Distributed Multi-Hop Scheduling and Medium Access with Delay and Throughput Constraints," ACM SIGMOBILE 2001, p. 200-209
AO	V. Kanodia, C. Li, A. Sabharwal, B. Sadeghi, E. Knightly, "Ordered Packet Scheduling in Wireless Ad Hoc Networks: Mechanisms and Performance Analysis," MOBIHOC '02, June 2002.

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LIST OF REFERENCES CITED BY APPLICANT  <i>(Use several sheets if necessary)</i>		60282.00114	Unassigned
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		FILING DATE	GROUP
		November 17, 2003	Unassigned

	AP	C.E. Koksai, H. Kassab, H. Balakrishnan, "An Analysis of Short-Term Fairness in Wireless Media Access Protocols," ACM SIGNMETRICS 2000.
	AQ	"NS", URL <a href="http://www-mash.cs.berkeley.edu/ns/">http://www-mash.cs.berkeley.edu/ns/</a>

EXAMINER	DATE CONSIDERED
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.